

Exhibit B

(English)

DM-RAFC012-02

Dealer's Manual

| | | |
|--------|-----------|---------|
| ROAD | GRAVEL | MTB |
| E-BIKE | LIFESTYLE | GENERAL |

Crankset (Inspection Method)

DURA-ACE

FC-R9100

FC-R9100-P

FC-9000

ULTEGRA

FC-R8000

FC-6800

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IMPORTANT NOTICE

- **This dealer's manual is intended primarily for use by professional bicycle mechanics.**

Users who are not professionally trained for bicycle assembly should not attempt procedures themselves using the dealer's manuals.




If any part of the information on the manual is unclear to you, do not proceed with the installation. Instead, contact your place of purchase or a distributor for assistance.

- Do not disassemble the product other than as stated in the information contained in this dealer's manual.
- All manuals and technical documents are accessible online at <https://si.shimano.com>.

For safety, be sure to read this dealer's manual thoroughly before use, and follow it for correct use.

The following instructions must be observed at all times in order to prevent personal injury and physical damage to equipment and surroundings.

The instructions are classified according to the degree of danger or damage which may occur if the product is used incorrectly.


| | | |
|---|----------------|--|
|  | DANGER | Failure to follow the instructions will result in death or serious injury. |
|  | WARNING | Failure to follow the instructions could result in death or serious injury. |
|  | CAUTION | Failure to follow the instructions could cause personal injury or physical damage to equipment and surroundings. |

TO ENSURE SAFETY

DANGER

- Do not get the charging cable wet and do not touch or hold it while it is wet or with wet hands. If this is not observed, issues with operation or electric shocks may occur.
- Do not touch the metal terminals with metal items such as hairpins. If this is not observed, short-circuits, overheating, burns or other injuries may occur.
- If any liquid leaking from the battery gets into the eyes, immediately wash the affected area with clean water without rubbing the eyes, then seek medical attention. If this is not done, blindness may occur.
- Do not allow the battery terminals to get wet. If this is not observed, fire, bursting, ignition, or overheating may occur.

WARNING

-  Wear approved eye protection while performing procedures.
- If any leaked fluid gets on your skin or clothes, wash it off immediately with clean water. The leaked fluid may damage your skin.

CAUTION

- Be careful not to touch the teeth of the chainrings. Otherwise, you may be injured.
- Do not perform procedures with the charging cable connected.

Model number for inspection

The following crankset models are subject to inspection in this manual.

FC-R9100



FC-R8000



FC-R9100-P



FC-6800



FC-9000



- All crank lengths and chainring combinations are subject to inspection in this manual.
- The left crank of the FC-R8000 and FC-6800 are not subject to inspection in this manual.

Checking the model number and production code

Overview

Perform cleaning and inspection if the model number and production code of the crankset match one of the target crankset models.

Location of model number and production code

Before removing the crankset from the bicycle, confirm that the model number and production code match one of the target crankset models.



Model number

Production code



Model number

Production code

Model number for inspection

FC-R9100

FC-R9100-P

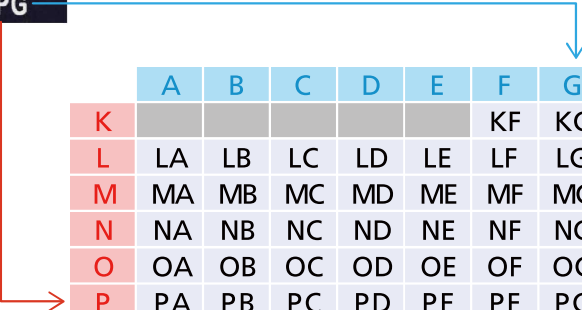
FC-9000

FC-R8000

FC-6800

Production code for inspection

SHIMANO
FC-R9100
JAPAN VIA
172.5 PG



| | A | B | C | D | E | F | G | H | I | J | K | L |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| K | | | | | | KF | KG | KH | KI | KJ | KK | KL |
| L | LA | LB | LC | LD | LE | LF | LG | LH | LI | LJ | LK | LL |
| M | MA | MB | MC | MD | ME | MF | MG | MH | MI | MJ | MK | ML |
| N | NA | NB | NC | ND | NE | NF | NG | NH | NI | NJ | NK | NL |
| O | OA | OB | OC | OD | OE | OF | OG | OH | OI | OJ | OK | OL |
| P | PA | PB | PC | PD | PE | PF | PG | PH | PI | PJ | PK | PL |
| Q | QA | QB | QC | QD | QE | QF | QG | QH | QI | QJ | QK | QL |
| R | RA | RB | RC | RD | RE | RF | | | | | | |

Inspection with the crank arm installed

Introduction

The purpose of this manual is to provide guidelines for inspecting the crank set for signs of delamination. Delamination refers to the early stages of separation at the interface (the part where the two parts are bonded together) between the crank set body and cover. Therefore, it is important to carefully inspect the entire area of the crank set where it is bonded.

Exterior inspection

Before removing the crankset from the bicycle, inspect the area around the crank arm.

- **Right crank arm's bonded area**

Inspect for issues such as cracks or gaps, focusing on the areas indicated in red in the figures below.



- **Left crank arm's bonded area**

Inspect for issues such as cracks or gaps, focusing on the areas indicated in red in the figures below.



For example issues, refer to " [Example issues](#) " starting on page 29 of the PDF.

Abnormal noise inspection



If there is an issue with the crankset, it may emit an abnormal noise.



Cleaning

Preparing the cleaning supplies

Prepare the following tools and neutral detergent.

- Bucket



- Sponge/brush



- Neutral detergent



NOTICE

- Prepare a brush or sponge made of a soft material such as plastic.



- Do not use hard materials such as metal scrubbing brushes.



- Do not use alkaline or acidic detergent or part cleaners.



Alkaline or acidic detergent



Part cleaner

Cleaning method

1. Remove the crankset from the bicycle.

For information on removing the crankset, refer to the [dealer's manual for the crankset](#).

2. Remove the chainrings.

For information on removing the chainrings, refer to the [dealer's manual for the crankset](#).

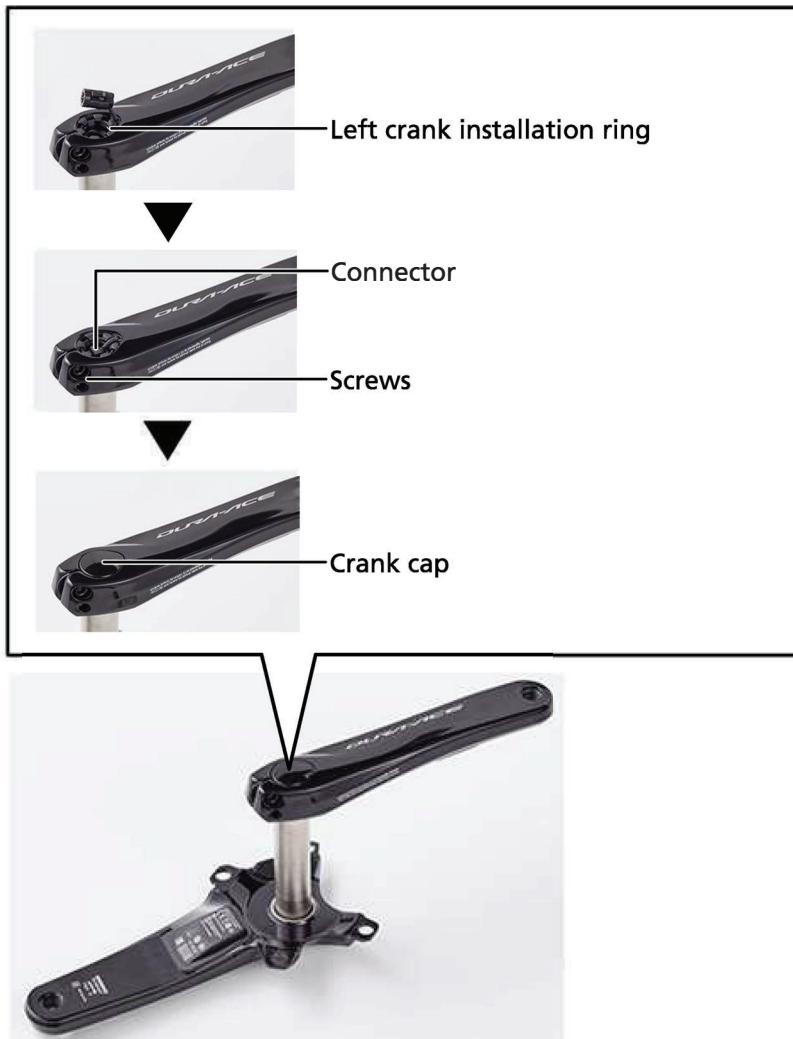


NOTICE

For the FC-R9100-P (Dual-sided power meter)

- After removing the left crank arm and right crank arm from the bicycle, install the left crank arm to the axle of the right crank arm.

Install the left crank installation ring, and insert the connector. Then, lightly tighten the two screws of the left crank arm so that they will not come off while cleaning, and correctly install the crank cap.



- For information on installing the crankset, refer to the [dealer's manual for the dual-sided power meter](#).
- For information on removing the chainrings, refer to the [dealer's manual for the dual-sided power meter](#).

Cleaning method

3. Roughly clean off the dirt.

NOTICE

For the FC-R9100-P (Dual-sided power meter)

- Do not immerse the area around the connector in solvents.
Doing so may cause power meter failure.



- Do not scrub the area around the connector too hard with a brush.



4. Clean the detailed areas.

Focus cleaning on the areas indicated in red in the figures below.

- Right crank arm locations of bonded area that must be cleaned thoroughly.



Cleaning method

- Left crank arm locations of bonded area that must be cleaned thoroughly.



TECH TIPS

- Cleaning can be performed more thoroughly by using a small brush.



Before cleaning

After cleaning



5. Wipe off any moisture.

- Use a clean rag or similar object.



- Because detergent is prone to collect inside the axle, make sure to rinse the axle carefully with water, then dry it well.



NOTICE

For the FC-R9100-P (Dual-sided power meter)

- In addition to wiping off the moisture, use compressed air, etc. to sufficiently remove the moisture.
- Remove the crank cap, then loosen the two screws of the left crank arm. Then, correctly remove the connector and the left crank installation ring, and remove the left crank arm.



Crank cap



Screws

Connector



Left crank installation ring

- For information on removing the crankset, refer to the [dealer's manual for the dual-sided power meter](#).

Inspecting for issues

Introduction

Shimano expects you to use a magnifying glass for inspections, which will make signs of delamination easier to identify. Shimano recommends use of an 11x power magnifying glass to enhance the inspections. If issues such as cracks or gaps are found in the crank arm, immediately stop use and replace the target product. If no issues are found even after inspection with the magnifying glass, refer to the [dealer's manual for the cranks](#) to reinstall the chainrings and the crankset.

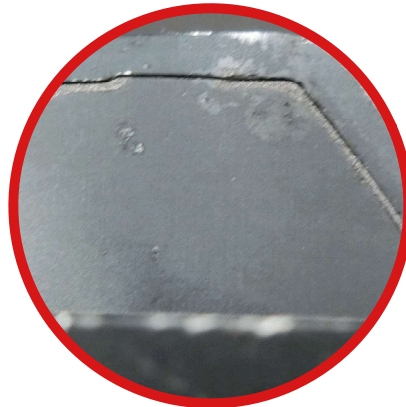
- Magnifying glass



Without magnification



View through the magnifying glass, showing early signs of delamination



Right crank arm

Inspect for issues such as cracks or gaps, focusing on the areas indicated in red in the figures below.

Pay special attention to where the right-side crank is connected to the chainring, as this is the location where corrosion most frequently occurs, which can lead to delamination.



Chainring connection points





NOTICE

Areas that do not require inspection (FC-R9100 and FC-R8000)

- The gap outlined in red in the figure is the result of cutting during the manufacturing process, and does not require inspection.



Left crank arm

Inspect for issues such as cracks or gaps, focusing on the areas indicated in red in the figures below.



Inspect the area around the screws on both sides of the left crank arm.

Example issues

Right crank arm

Sign of delamination and crack

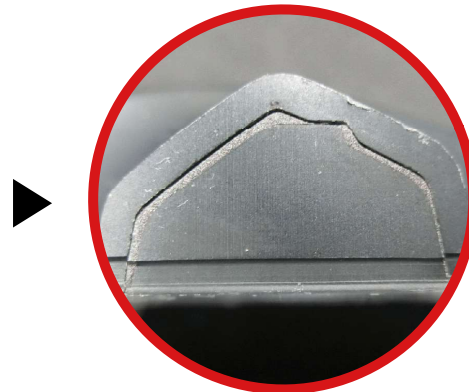


View through the magnifying glass.

Without magnification



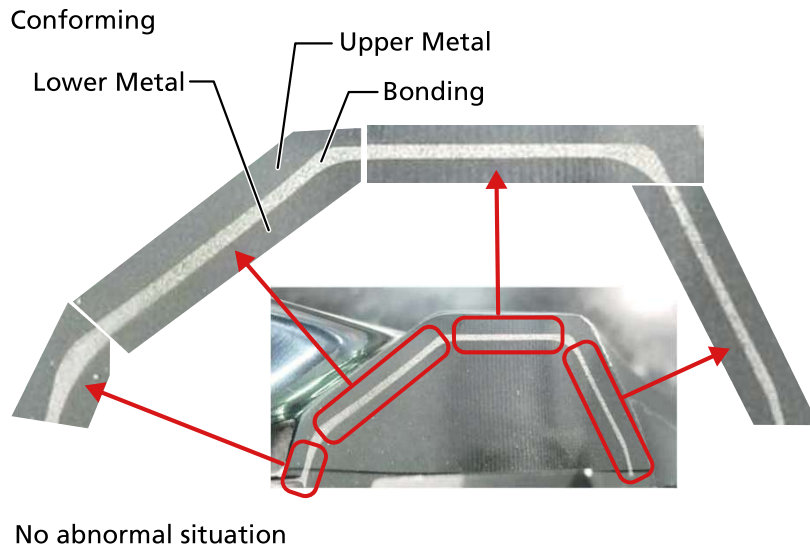
View through the magnifying glass, showing early signs of delamination



Examine the joint area between the cover and the crank body carefully for any signs of delamination, since this might indicate that the crank arms are beginning to separate. Delamination can be seen in the form of cracks, steps and gaps.

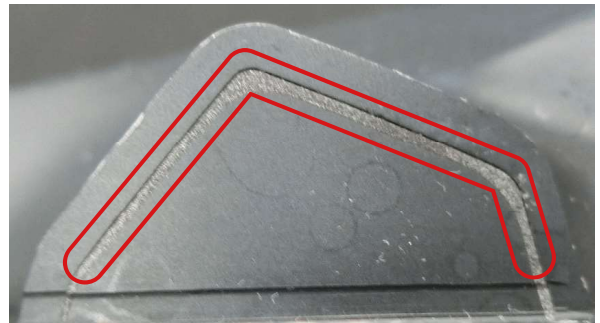
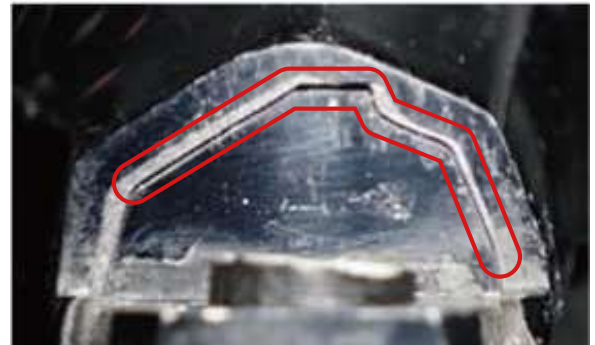
There are cases where cracks or unevenness have been found around the gear attachment area, so please make sure to check carefully.

These are examples of cranks with no sign of delamination. There are no cracks between the bonding and the metal.



These photos show examples of cracks that have formed between the bonding and the metal. This is an early sign of delamination.

Non-conforming

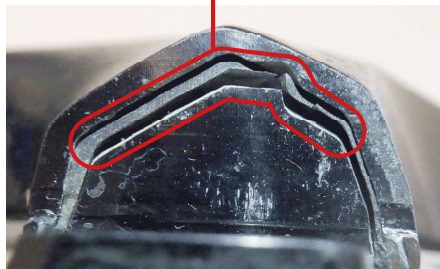


Early sign of delamination with a tiny gap.

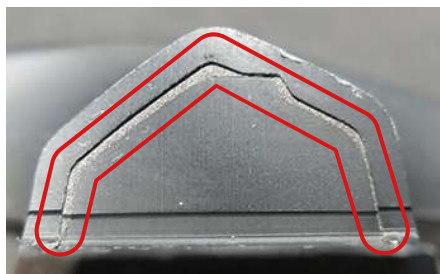
Sign of delamination through the magnifying glass

These photos show additional examples of cracks that have formed between the bonding and the metal. This is an early sign of delamination.

Non-conforming



There is a crack between the upper side metal and the bonding, and the lower side metal and the bonding.



There is a crack between the upper side metal and the bonding.



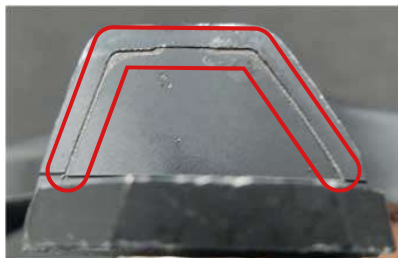
There is a crack between the lower side metal and the bonding.

Sign of delamination through the magnifying glass

Non-conforming



There is a crack between the upper side metal and the bonding, and the lower side metal and the bonding.



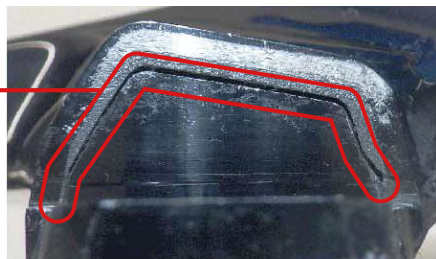
There is a crack between the upper side metal and the bonding.



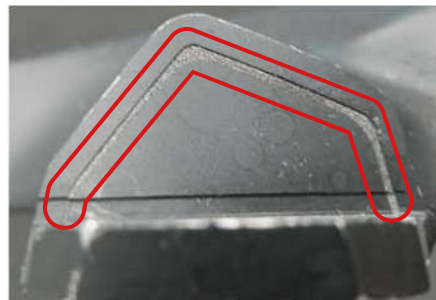
There is a crack between the lower side metal and the bonding.

Sign of delamination through the magnifying glass

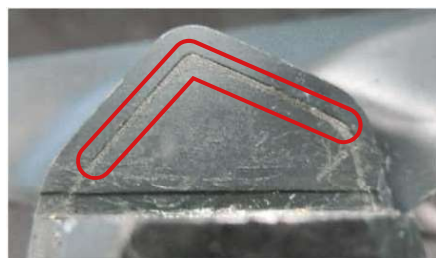
Non-conforming



There is a crack between the lower side metal and the bonding.



There is a crack between the upper side metal and the bonding.

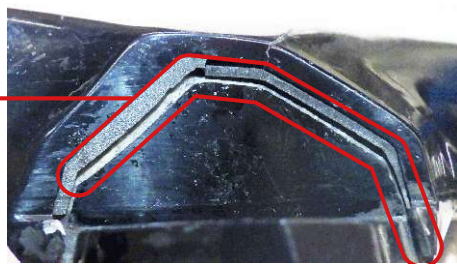


There is a crack between the upper side metal and the bonding.

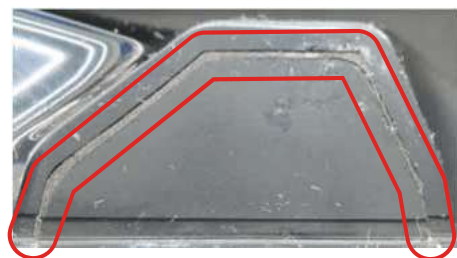
Sign of delamination through the magnifying glass



Non-conforming



There is a crack between the upper side metal and the bonding, and the lower side metal and the bonding.



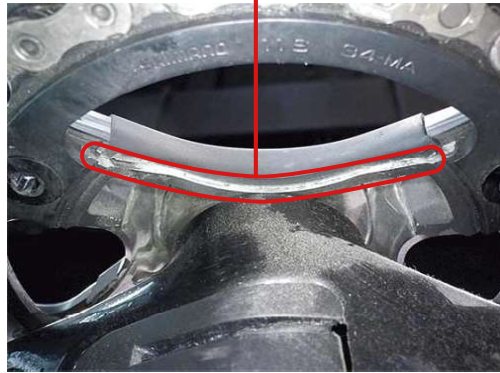
There is a crack between the upper side metal and the bonding.



There is a crack between the lower side metal and the bonding.

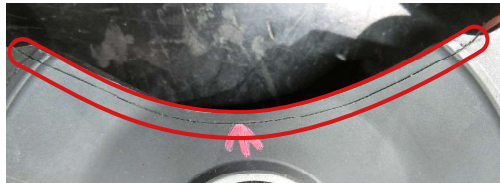
Sign of delamination through the magnifying glass

Non-conforming



There is a step between the upper side metal and the lower side metal, which means that the upper and lower metal surface joints are uneven and not smooth to the touch.

Delamination



There is a gap between the metal and the bonding.

Two uneven joint surfaces showing sign of delamination



There is a step between the upper side metal and the lower side metal, which means that the upper and lower metal surface joints are uneven and not smooth to the touch.

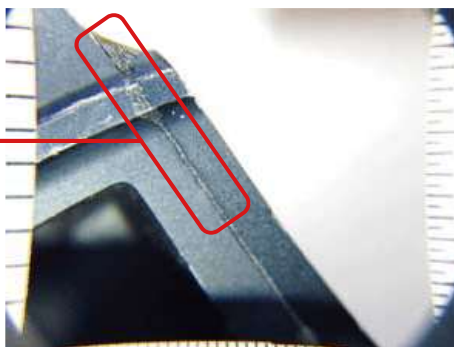
Sign of delamination through the magnifying glass

Non-conforming



Delamination with a small gap

There is a gap between the metal and the bonding.

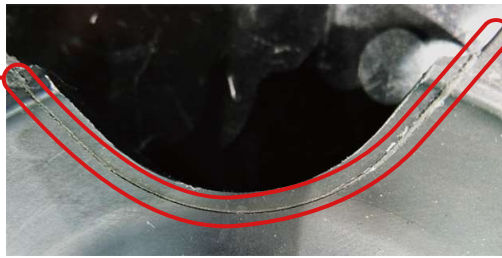


Two joint surface areas are uneven

There is a gap between the metal and the bonding.

Sign of delamination through the magnifying glass

Non-conforming



There is a crack between the metal and the bonding.

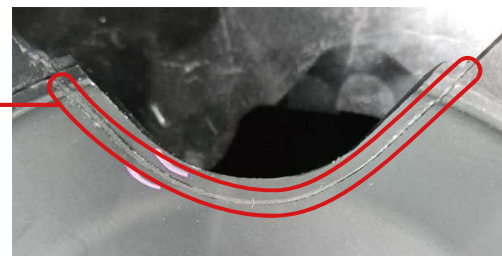


There is a crack between the metal and the bonding.



There is a step between the upper side metal and the lower side metal, which means that the upper and lower metal surface joints are uneven and not smooth to the touch.

Non-conforming



There is a crack between the metal and the bonding.

Early sign of delamination with a tiny gap



There is a crack between the upper side metal and the bonding, and the lower side metal and the bonding.

Two uneven joint surfaces showing sign of delamination



There is a step between the upper side metal and the lower side metal, which means that the upper and lower metal surface joints are uneven and not smooth to the touch.

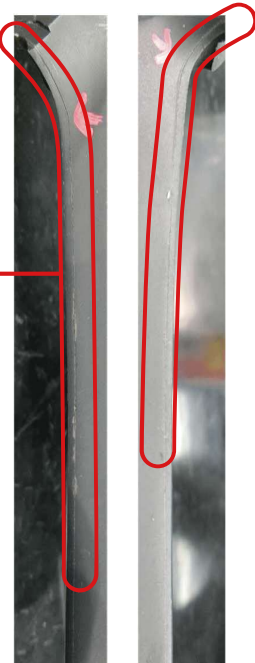
Sign of delamination through the magnifying glass



Non-conforming



There is a crack between the upper side metal and the bonding. And there is a lack of the bonding caused by delamination.

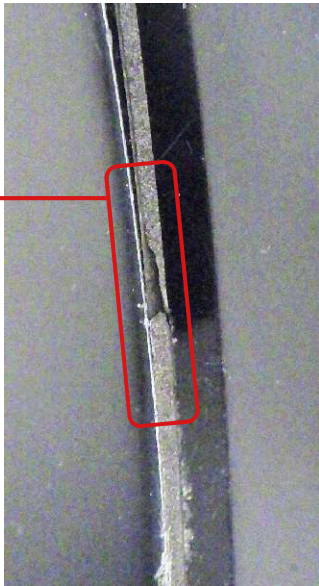


There is a crack between the metal and the bonding.

Early sign of delamination with a small crack

Sign of delamination through the magnifying glass

Non-conforming

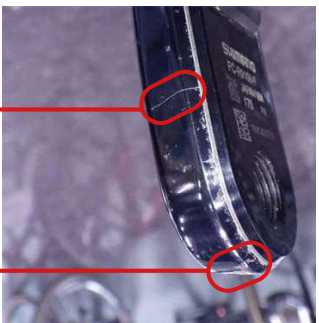


There is a crack between the metal and the bonding. And there is a lack of the bonding.



There is a crack between the metal and the bonding. And there is a hairline crack caused by delamination.

Hairline crack caused by delamination



There is a crack between the metal and the bonding. And there is a hairline crack caused by delamination.

Left crank arm

Sign of delamination through the magnifying glass

Non-conforming



There is a crack between the metal and the bonding.



There is a crack between the metal and the bonding.

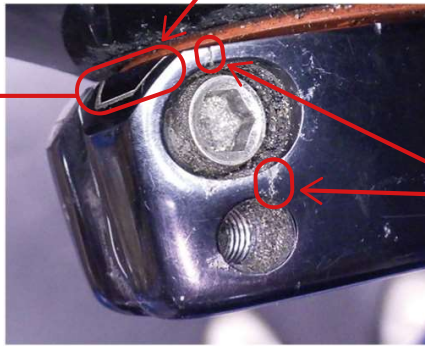
Prominent lines developing between 2 joints



There is a crack between the metal and the bonding.

Sign of delamination through the magnifying glass

Non-conforming



There is a crack caused by delamination.

There is a crack between the metal and the bonding.

Small cracklines developing near clamp bolts



There is a crack caused by delamination.



There is a crack between 2 metals.

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